



Poster session 1 - Monday 4 July

P1.044 Wire-cell tomographic event reconstruction for large LArTPCs

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Event reconstruction is one of the most challenging tasks in analyzing the data from current and future large liquid argon time projection chambers (LArTPCs). The performance of the event reconstruction holds the key to many potential future discoveries with the LArTPC technology including i) searching for new CP violation in the leptonic sector, ii) determining the neutrino mass hierarchy, and iii) searching for additional light (sterile) neutrino species. In this poster, we introduce a new reconstruction method: Wire-Cell^[1]. The principle of Wire-Cell strictly follows the principle of LArTPC, that is, the same amount of ionization electrons are observed by all the wire-planes. Using both time and charge information, 3D image of the event topologies are firstly obtained. Further reconstruction steps including the clustering, tracking, and particle identifications (PID) are then directly applied to the 3D image. The principle, current status, and future development plan of Wire-Cell will be described. The results of Wire-Cell event reconstruction will be shown with an innovative web-based "BEE" 3D event display.

[1] <http://www.phy.bnl.gov/wire-cell/>